curriculum vitae

TIMOTHY A. RINEHART
USDA, ARS, Southern Horticultural Laboratory

University Education

1994	B.S. (Biology)	Case Western Reserve University	Cleveland, Ohio
2001	Ph.D. (Botany)	University of Idaho	Moscow, Idaho

Dissertation Title: Transposable Elements and Genome (dis)Organization in Higher Eukaryotes.

Employment

2003 – present Research Molecular Geneticist (Plants)
USDA, ARS, Southern Horticultural Laboratory, Poplarville, MS 39470

2003 – 2003 Application Scientist
Turner Biosystems Inc., Sunnyvale, CA 94085

2000 – 2003 DNA Analyst
Sequetech Corporation, Mountain View, CA 94043

1995 – 2000 Graduate Research Assistant
University of Idaho, Department of Biological Sciences, Moscow, ID 83843

1994 – 1995 Custom Sequencing Laboratory Technician
United States Biochemical, Cleveland, OH 44128

1994 – 1995 Staff Research Assistant, Type I
Case Western Reserve University, Department of Biological Sciences, Cleveland, OH 44106

1990 – 1995 Undergraduate Research Assistant under Dr. Chris Cullis
Case Western Reserve University, Department of Biological Sciences, Cleveland, OH 44106

Research Interests

My objective is to develop strategies for breeding new and improved woody ornamental germplasm adapted to the southeastern United States. I focus on understanding the genetic/genomic basis of host-plant resistance to diseases and insects and integrating that knowledge *via* molecular-based breeding programs. Primarily, I develop SSR markers for ornamental crops and establish breeding populations. Because relatively little genetic research is dedicated to improving ornamental crops, my work encompasses everything from classical genetics, genome sizing, mutation breeding, ploidy and ploidy manipulation, to molecular genetics, marker-assisted breeding, map-based cloning, and bioinformatics. I am also interested in genomics approaches to elucidate genes responsible for remontant flowering. I serve as a technology resource at SHRL and have developed molecular tools for soil-borne pathogen detection, insect parasitoid identification and quantification, and DNA-based gut content analyses.

Refereed Publications

Rinehart, T. (2004) AFLP analysis using GeneMapper software and an Excel macro that aligns and converts output to binary. *Biotechniques*, Vol. 37, Issue 2, pp 186-188.

Rinehart, T., R. Grahn, and H. Wichman (2004) SINE extinction preceded LINE extinction in Sigmodontine rodents: Implications for retrotranspositional dynamics and mechanisms. *Cytogenetics and Genome Research* (in press).

Grahn, R., T. Rinehart, M. Cantrell, and H. Wichman (2004) Extinction of LINE-1 activity coincident with a major mammalian radiation in rodents. *Cytogenetics and Genome Research* (in press).

Rinehart, T., C. Dean and C. Weil (1997) Comparative Analysis of non-random DNA repair following *Ac* transposon excision in maize and *Arabidopsis*. *The Plant Journal*, Vol. 12, pp 1419-1427.

Current Service

Woody Landscape Plant Crop Germplasm Committee (WLPCGC) ex-officio member
Institutional Biosafety Committee, Southern Horticultural Laboratory
Safety Committee, Southern Horticultural Laboratory
Webmaster, Southern Horticultural Laboratory
Genomics Laboratory Liaison Group, ARS, Mid South Area

Scientific Community

American Society for Horticultural Science (ASHS) and Southern region member, 2003 – present
International Society of Horticultural Science (ISHS), 2003 - present
Mississippi Nursery and Landscape Association Affiliate member (MNLA), 2003 - present
The American Hydrangea Society (AHS) 2003 - present
American association for the advancement of Science (AAAS), 1999 - present
Genetics Society of America (GSA), 1997 – present

Grower Presentations

2004 32nd Annual Horticultural Field Day, Mississippi State University, Mississippi Agricultural and Forestry Experiment Station (MAFES), Poplarville, MS
"USDA Crapemyrtle Breeding Program in Poplarville, MS."

2004 32nd Annual Horticultural Field Day, Mississippi State University, MAFES, Poplarville, MS
"Genetic diversity and molecular detection of *Rhizoctonia* species in a nursery environment."

2004 Ornamental Group Liaison Committee, Gulf States Horticultural Expo, Mobile, AL
"Ornamental Plant Molecular Genetics Research Overview."

2003 31st Annual Horticultural Field Day, Mississippi State University, MAFES, Poplarville, MS
"What can molecular genetics do for ornamental plant research?"

2003 31st Annual Horticultural Field Day, Mississippi State University, MAFES, Poplarville, MS
"Genetic diversity in *Hydrangea*."

Scientific Presentations

2001 Invited speaker, Colloquium Series, University of Idaho, Dept. of Biological Sciences, Moscow, ID.
"Transposable Elements and Genome (dis)Organization in Higher Eukaryotes."

1999 Meetings of the Society for the Study of Evolution, American Society of Naturalists and Society of Systematic Biologists, University of Wisconsin, Madison, WI.
"Similar, Coordinated LINE and SINE activity in South American rodents."

1999 Fall Seminar Series, University of Idaho, Dept. of Biological Sciences, Moscow, ID.
"Looking for SINEs of Activity: Profiling Retrotransposition in South American Rodents."

1997 39th Annual Maize Genetics Conference, Sheraton Sand Key Resort, Clearwater Beach, FL.
"Comparative analysis of non-random DNA double-strand break repair following *Ac/Ds* excision in maize and *Arabidopsis*."

Teaching

2000 Instructor, Biology 352, Experimental Genetics, University of Idaho, Moscow, ID 83843
1999 Graduate Teaching Assistant, Botany 425/525, Developmental Plant Anatomy
Dr. Anne Sylvester, University of Idaho, Moscow, ID 83843
1998 Graduate Teaching Assistant, Biology 203, General Botany
Dr. George Spomer, University of Idaho, Moscow, ID 83843
1995 Graduate Teaching Assistant, Biology 100, Introduction to Biology for non-majors
Dr. Frank Rosenzwieg, University of Idaho, Moscow, ID 83843

Community and Outreach
Science Fair Judge, Region #1 Mississippi State, Hattiesburg, MS, March, 2004
Friends of the Poplarville Library, 2003 - present

Scholarships, Fellowships, Awards
1999 Travel Grant, Graduate Student Association, $500
1998 Graduate Student Exhibition Outstanding Division Participant, GSA, $200
1997 Travel Grant, Graduate Student Association, $500
1990 Presidential Scholarship, CWRU, $10,000

Published Abstracts and Proceedings
Rinehart, T. and S. Reed (2004, submitted) *Hydrangea* microsatellite markers for cultivar identification and hybrid verification. Plant and Animal Genome XIII (PAG), San Diego, CA.

Rinehart, T. and C. Pounders (2004, submitted) Linkage mapping SSR markers in *Lagerstroemia* species. American Society for Horticultural Science (ASHS) Southern region conference. Mobile, AL.

Pounders, C. and T. Rinehart (2004) USDA Crapemyrtle Breeding Program in Poplarville, MS. Proceedings of the 32nd Annual Horticultural Field Day, Mississippi State University, pp 5.

Rinehart, T. and W. Copes (2004) Genetic diversity and molecular detection of *Rhizoctonia* species in a nursery environment. Proceedings of the 32nd Annual Horticultural Field Day, Mississippi State University, pp 8.

Rinehart, T. (2003) What can molecular genetics do for ornamental plant research? Proceedings of the 31st Annual Horticultural Field Day, Mississippi State University, pp 15.

Rinehart, T. and S. Reed (2003) Genetic diversity in *Hydrangea*. Proceedings of the 31st Annual Horticultural Field Day, Mississippi State University, pp 13.

Rinehart, T. and C. Weil (1998) Comparative analysis of non-random *Ac/Ds* footprint formation in maize and *Arabidopsis*. Graduate Student Exhibition, GSA, University of Idaho, Moscow, ID.

Weil, C., J. Eissis, T. Rinehart and P. Page (1997) Unusual host control of *Ds* transposition in maize. Keystone Symposium on Transposition and Site-specific Recombination, Santa Fe, NM.

Rinehart, T., K. Poppleton, N. Daigle and C. Weil (1997) Non-random double-strand break repair accompanies *Ac/Ds* transposon excision in maize and *Arabidopsis*. Keystone Symposium on Transposition and Site-specific Recombination, Santa Fe, NM.

Rinehart, T., C. Dean, K. Poppleton, N. Daigle and C. Weil (1997) Comparative analysis of non-random DNA double-strand break repair following *Ac/Ds* excision in maize and *Arabidopsis*. 39th Annual Maize Genetics Conference, Sheraton Sand Key Resort, Clearwater Beach, FL.

Rinehart, T. (1996) *Ac/Ds* transposable elements: Analysis of insertion sites and excision products. Computational Molecular Biology, Visualization Analysis and Design in the Molecular Science (VADMS) Department, Washington State University, Pullman, WA.

Rinehart, T. and C. Weil (1996) Non-random DNA repair following Ac/Ds excision in *Arabidopsis*. 38th Annual Maize Genetics Conference, Pheasant Run Resort, St. Charles, IL.